USSR   UDC: 621.376.56

ALEKSANDROV, A. M., BATETSKIY, N. V., MISHCHENKO, I. N., PODD'YAKOVA, V. N.,
SAFRONOV, Yu. S.

"A Device for Shaping Series-Coded Signals"

Translation: This Author's Certificate introduces a device for shaping
series-coded signals of length N. The device contains shift registers and
cadence pulse generators. As a distinguishing feature of the patent, the
number of digital places in the shift register is reduced by connecting two
shift registers in a matrix circuit, one of the registers consisting of n
digital places, while the other consists of N/n places. The output of each
of the digital places in the second register is connected to those inputs of
digital places in the first register where the "ones" of the code to be
generated must be recorded for a given group of symbols of length n. The
first register operates on a cadence frequency of f, and the second on a
frequency of f/n.

1/1

USSR   UDC 03.094

BATIKYAN, S. G., Chair of Lower Plants, Yerevan State University, Yerevan

"Some Cytochemical Properties of Fusarium Species Under Different Cultivation Conditions"

Abstract: The behavior of volutin granules in mycelium of Fusarium oxysporum and F. javanicum during submerged culturing was studied. Czapek medium and brewing wort were used for culturing these two strains of Fusarium in Erlenmeyer 250 ml. flasks at 24-26°C. Microscopic and cytochemical studies of mycelium was carried out every 24 hr. The development of Fusarium species on the above two media proceeded in six phases. A detailed description of each phase is given. These phases could not be definitely related to time, and phases of both strains were almost identical.

1/1

USSR   UDC 03.094

BATIKYAN, S. G., Chair of Lower Plants, Yerevan State University

"Survey of Species and Forms of Fusarium Found in Armenia"

Abstract: A total of 328 strains of Fusarium were isolated from sick plants
and soil samples. Morphological, cultural, and physiological studies showed
that they belonged to 59 species and variations. Of these, 29 were found
in Armenia for the first time and 1 species and 10 species were new to science:
Fusarium martiellae - discolorioides Batikian sp. novae; Fusarium javanicum
Koord. var. chrysanthemi - leucanthemi Batikian var. novae var. sclerotii
Batikian var. novae; Fusarium solani (Mart.) App. et Wr. var.; Fusarium
redolens - sclerotii Batikian var. novae; Fusarium oxysporum Schlecht. emend.
Snyd. et Hans. var. lilii Batikian var. novae; Fusarium gibbosum var.
rhizosphaerae Batikian var. novae; Fusarium heterosporum Nees var. anasto-
mosae Batikian var. novae; Fusarium lateritium Nees var. microconidii Batikian
var. novae; Fusarium sanbucinum Fuck. var. raphani Batikian var. novae;
Fusarium semitectum Berk. et Rav. var. violaceae Batikian var. novae; Fusarium
buxicola Sacc. var. Chlamydosporeae Batikian var. novae. The substrates were
highly varied. Many of the species and variations were isolated from soil,
1/2

USSR

BATIKYAN, S. G., Biologicheskiy Zhurnal Armenii, No 7, 1971, pp 101-104

seeds, plant and tree roots, rotting vegetables and fruits, and drying
plants.   All the species and forms occur almost everywhere in Armenia
except in the mountainous regions.

2/2

USSR   UDC 03.09

BATIKYAN, S. G., Chair of Lower Plants, Yerevan State University, Yerevan

"An Experimental Study of the Pathogenicity and Specialization of Some
Species and Forms of Fusarium Isolated in the Armenian SSR"

Abstract: Fungi of the genus Fusarium which cause wilt of plants (garden
flowers and tomato plants) and produce rotting of harvested fruit and
vegetables in the Armenian SSR were isolated and identified. Their patho-
genicity and host specialization were tested in experiments in which plants,
fruit, or vegetables of the species from which the fungi had been isolated
were infected and the capacity of the fungi to infect plants, fruit, and
vegetables of other species, genera, and families was determined. Infec-
tion of the original host species succeeded in every instance. The species
of Fusarium that had been isolated also proved capable of infecting a
rather wide range of plants, fruit, or vegetables of species, genera, and
families other than those of the initial host.

1/1

USSR   UDC 547.852.7+542.945+542.957.2

GAVRILOV, V. I., BATINA, L. A., CHERNOKAL'SKIY, B. D., and KAMAY, G. Kh.,
(deceased), Kazan' Chemical-Technological Institute imeni S. M. Kirov

"Reaction of Tertiary Arsine Oxide of the Dihydrophenarsazine Series With
Acids"

Abstract: It was determined that the hydrochloric, hydrobromic and trich-
loroacetic acids as well as pentachlorophenol form adducts with 10-alkyl-
(aryl)-5,10-dihydrophenarsazine oxides (I) in aqueous alcohol medium or in
benzene. To a heated ethanol solution of (I) the above reagents were added
in 10 ml water; the solution was heated for 15 min, the volume was concen-
trated to 1/2-1/5 and cooled. A colorless crystalline product was obtained
-- the adduct mentioned above --, it was filtered, dried and recrystallized
from ethanol. It was also shown that (I) could be titrated with HCl in a
mixture of acetic acidacetic anhydride.

1/1

TITLE--ACTIVITY OF SOME SERUM ENZYMES IN TREATING PATIENTS WITH PULMONARY
CANCER WITH MASSIVE DOSES OF CYCLOPHOSPHANE -U-

AUTHOR-(03)-ZELVIN, B.M., BELOUSOV, A.P., BATINOV, I.N.

COUNTRY OF INFO--USSR

SOURCE--VOP. ONKOL. 1970, 16(2), 26-9

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PULMONARY DISEASE, CANCER, ANTINEOPLASTIC DRUG, ORGANIC
PHOSPHORUS COMPOUND, CELL PHYSIOLOGY, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/2041   STEP NO--UR/0506/70/016/002/0026/0029

CIRC ACCESSION NO--AP0117284
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0117284
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LEVELS OF THE ENZYMES, ALANINE
AND ASPARTIC AMINOTRANSFERASE (ALT AND AST) AND CHOLINESTERASE WERE
INVESTIGATED IN THE SERUM OF PATIENTS TREATED WITH CYCLOPHOSPHANE (26
WITH LUNG TUMORS BEFORE SURGERY AND 10 AFTER RADICAL SURFERY). THE DRUG
WAS GIVEN IN LARGER DOSES, 2 TO 5 G I.V. EVERY 10-14 DAYS. ALT AND AST
WERE DETD. BY THE UMBRIGHT METHODS (MODIFIED); CHOLINESTERASE LEVEL WAS
EVALUATED BY MEASUREMENT OF HOAC, AFTER ENZYMIC DECOMPN. OF
ACETYLCHOLINE DURING 1 MIN IN 1 ML SERUM. THE ENZYMES WERE MEASURED
BEFORE THE BEGINNING OF TREATMENT, ON THE 2-3RD DAY, AND ON THE 10-12TH
DAY. HEALTHY (15) PERSONS SERVED AS CONTROLS. IN CASES OF MALIGNANCY
THE INITIAL VALUES WERE SOMEWHAT HIGHER THAN IN NORMALS. AFTER THE
ADMINISTRATION OF CYCLOPHOSPHANE, A DISTINCT RISE OF ALT, A LESSER RISE
OF AST, AND A FALL IN CHOLINESTERASE ACTIVITIES WERE OBSD. AFTER
RADICAL SURGERY THE SHIFTS WERE LESS DISTINCT, NO RISE OF AST WAS OBSD.
NO DEPENDANCE WAS FOUND BETWEEN THE ENZYMIC ACITIVITY AND THE STAGE OF
THE DISEASE. THE OBSD. CHANGES MAY BE CONSIDERED AS SIGNS OF METABOLIC
DISTURBANCES IN THE LIVER.   FACILITY: LAB. BIOCHEM., P. A.
GERTSEN RES. INST. ONCOL., MOSCOW, USSR.

UNCLASSIFIED

1/2   023   UNCLASSIFIED   ∕   PROCESSING DATE--09OCT70
TITLE--RADIOISOTOPE INVESTIGATION OF THE LIVER FUNCTION IN THE
  CYCLOPHOSPHAN TREATMENT OF LUNG CANCER -U-
AUTHOR-(03)-STARINSKIY, V.V., TRAKHTENBERG, A.KH., BATINOV, I.N.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 4, PP 32-38

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOISOTOPE, MEDICAL NUCLEAR APPLICATION, LIVER FUNCTION
  TEST, LUNG, CANCER, ANTINEOPLASTIC DRUG, ROSE BENGAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0939   STEP NO--UR/0241/70/015/004/0032/0038

CIRC ACCESSION NO--AP0109096
                        UNCLASSIFIED

2/2   023   UNCLASSIFIED   PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0109096
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA OF THE FUNCTIONAL STATE OF
   THE LIVER (BIOCHEMICAL AND THE RESULTS OF RADIOISOTOPE HEPATOGRAPHY WITH
   RADIOIODINE BENGAL ROSE) WERE STUDIED IN 30 PATIENTS WITH LUNG CANCER
   WHO WERE TREATED WITH LARGE SINGLE DOSES OF CYCLOPHOSPHAN. THE TEST
   WITH RADIOIODINE LABELLED BENGAL ROSE ENABLED TO DETECT CHANGES IN THE
   ABSORPTIVE EXCRETROY FUNCTION OF THE LIVER BEFORE TREATMENT.
   RADIOISOTOPE HEPATOGRAPHY POINTED TO THE ESSENTIAL TOXIC EFFECT OF
   CYCLOPHOSPHAN ON THE LIVER. THIS EFFECT DIRECTLY DEPENDED ON THE VALUE
   OF THE COURSE DOSE OF THE PREPARATION AND UPON THE CLINICAL RESULTS OF
   TREATMENT. THE DISTURBED INDICES OF THE ABSORPTIVE EXCRETORY FUNCTION
   OF THE LIVER PRACTICALLY REVERT TO NORMAL 2-3 WEEKS AFTER THE END OF
   CHEMOTHERAPY. THE TEST WITH RADIOIODINE LABELLED BENGAL ROSE IS A MORE
   SENSITIVE TEST FOR DETERMINING THE FUNCTIONAL STATE OF THE LIVER IN THE
   TREATMENT OF LUNG CANCER PATIENTS WITH LARGE SINGLE DOSES OF
   CYCLOPHOSPHAN THAN THE ROUTINE LABORATORY TECHNIQUES. THIS GIVEN
   GROUNDS TO RECOMMEND THIS TEST FOR THE ASSESSMENT OF RESERVES OF
   COMPENSATORY POSSIBILITIES OF THE LIVER.   FACILITY: LABORATORIYA
   IZOTOPNYKH ISSLEDOVANIY, OTD. TORAKAL'NOY ONKOLOGII MOSKOVSKOGO N-I
   ONKOLOG. INST. IM. P. A. GERTSENA.

UNCLASSIFIED

USSR

BATIROV, Kh., SALAKHUTDINOV, R.

"A Uniform Local Theorem for the Densities of Symmetric Distributions"

Translation: Uniform local theorems are considered for the densities of symmetric distributions. One of the proved theorems is extended to sums of a random number of terms. The estimate is improved by an order of magnitude compared with asymmetric distribution.

1/1

USSR   UDC: 519.2

BATIROV, Kh.

"Local Theorems for the Densities of Sums of a Random Number of Differently
Distributed Random Quantities"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes. Tashkent State Peda-
gogical Institute), 1972, 100, pp 18-31 (from RZh-Kibernetika, No 5, May
73, abstract No 5V32 by the author)

Translation: An estimate is made of the rate of convergence to a normal
law for the density of the sum $(\xi_1 + \ldots + \xi_\nu)/s_{\left[\frac{\alpha}{2}\right]}$, where ν is a random quantity

which satisfies certain conditions, $\alpha = M\nu$, $s^2_{\left[\frac{\alpha}{2}\right]} = \sum_{i=1} D\xi_i$. The result is

extended to the case of symmetric random quantities, in which case the
estimate is improved by an order of magnitude.

1/1

I. Probability Theory and Mathematical Statistics

A. Probability Theory

USSR

UDC: 519.2

BATIROV, Kh.

"Concerning a Uniform Limit Theorem for Densities of Sums of a Random Number of Terms"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes. Tashkent State Pedagogical Institute), 1972, 100, pp 13-17 (from RZh-Kibernetika, No 5, May 73, abstract No 5V31 by V. Prelov)

Translation: Let $\xi_1, \xi_2, \ldots, \xi_n, \ldots$ be a sequence of independent, identically distributed random quantities, $M\xi_i = 0$, $D\xi_i = \sigma^2 < \infty$, $M|\xi_i|^3 < \infty$; $p(x)$ is the probability density function of ξ_i. Let the non-negative integral random quantity ν be independent of the sequence ξ_i, but let its distribution depend on the parameter λ in such a way that $\alpha = M\nu \to \infty$ as $\lambda \to \infty$. The symbol $p_\lambda(x)$ denotes the probability density function of $\eta_\nu = \left(\sum_{k=1}^{\nu} \xi_k \right) / \sigma \sqrt{\alpha}$ and it is assumed that $p(x) < A$, $|\xi_i| < L_\lambda = r_\lambda \sigma \sqrt{\alpha}$, and $\gamma^2 = D\nu = \sigma(\alpha)$. Under these assumptions it is proved that

1/2

USSR

BATIROV, Kh., Uch. zap. Tashkent. gos. ped. in-t, 1972, 100, pp 13-17

$$\left| P_\lambda(x) - \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} \right| < \left(1.4 + 2 \right) \sqrt{\frac{2}{\pi}} \frac{\gamma^2}{\alpha^2} + c_* \frac{(AL_\lambda)^\delta}{\sqrt{\alpha}},$$

uniformly with respect to x, where c_0 is an absolute constant, $\delta = 1$ if $AL_\lambda \leqslant 1$, and $\delta = 3$ if $AL_\lambda > 1$.

2/2

- 1 -

USSR

MANEVICH, D. V., BATIROV, Kh.

"Local Theorem for Limiting Poisson Distribution"

Translation: The authors consider a sequence of series of random quantities $\xi_{n1}, \xi_{n2}, \ldots, \xi_{nk_n}$, which are uniformly distributed in each series and take on integral non-negative values. It is assumed that $S_n = \xi_{n1} + \ldots + \xi_{nk_n}$. The following theorem is proved. In order that

$$P(S_n = m) \sim \frac{\lambda^{-m} e^{-\lambda}}{m!},$$

it is necessary and sufficient that the following two conditions be satisfied: 1) the distribution function of the sum $S_n - M\{S_n\} + \lambda$ converges to a Poisson distribution function with parameter λ; 2) the GCD for those differences $m_1 - m_2$, for which $P\{\xi_{n1} = m_1\} > 0$, $P\{\xi_{n1} = m_2\} > 0$ is unity. V. Kolchin.

1/1

- 4 -

Molecular Biology

KRITSKIY, G. A., BATISHCHEV, A. I., ALEKSANDROV, S. V., FEDOROV, N. A., and
ABRAMOV, R. Ye., Institute of Biochemistry imeni A. N. Bakh, Academy of
Sciences USSR, Moscow

"Comparative Characteristics of Nucleotide Blocks of DNA After Radiation Injury
and in Leukemia"

Abstract: DNA was isolated from bone marrow of Wistar rats irradiated at 500 r
and from spleens of $C_{57}Bl_6$ mice 6 days after induction of La leukemia. De-
termination of the pyrimidine nucleotide blocks of the DNA by paper chromatog-
raphy revealed good separation of most of the spots, 7 and 8 in particular.
The changes in distribution of the pyrimidine nucleotide blocks were found to
be the same in both DNA's. There was a significant increase in the relative
content of spot 10 material compared with the total content of the material of
all the spots as well as a maximum decrease in the nucleotide blocks correspond-
ing to chromatographic spot 7. The destruction of these portions of DNA re-
sulted in an increase in the amount of material corresponding to spots 8 and
10. The similarity of the changes in nucleic acids produced by irradiation and
leukemia may account for the increased frequency of tumors and especially
leukemias after exposure to ionizing radiation.
1/1

USSR   UDC: 8.74

AL'PEROVICH, E. Ye., BATISHCHEV, D. I., BASALIN, P. D., BEDNAYA, R. I.,
KOROTCHENKO, A. G., KONYUGINA, L. A., KOLDORKINA, L. R., SERGEYEVA, N. M.,
SUKHAREVA, V. A.

"SAPPOR -- a System for Automating the Process of Making Optimum Decisions"

Moscow, Kibernetich. sistemy avtomatiz. proyektir.--sbornik (Cybernetic
Automated Design Systems--collection of works), 1973, pp 29-35 (from RZh-
-Kibernetika, No 7, Jul 73, abstract No 7V633 by A. Doroshenko)

Translation: SAPPOR is a dialog system oriented for making optimum de-
cisions in the process of designing technical devices. The system is
realized on the BESM-3M computer with two memory arrays, the second
being designed for operation of a screen panel. The software of the
system is based on the modular principle and has the following modules:
1) "Model" -- for constructing the mathematical model of the object
being designed. This block is replaceable and varies depending on the
class of the object of optimization. In developing the SAPPOR, RLC cir-
cuits were taken as models. 2) "Formulation of the Problem" -- a com-
piler which prepares classes of problems formulated by the designer for

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USSR

AL'PEROVICH, E. Ye. et al., Kibernetich. sistemy avtomatiz. proyektir., 1973, pp 29-35

solution (calculating the characteristics of the object, optimizing the mathematical expectation in satisfying probability limitations, etc.).
3) "Method of Solution" -- a set of programs for finding the global minimum of an arbitrary curve, minimizing multiparameter functions and numerically solving problems in nonlinear programming. 4) "Check" -- enables following and controlling the process of finding the optimum with respect to information which may appear at the output (alphanumeric printer, screen panel) as ordered by the operator. 5) "Output of Results" -- gives the results of optimization in the form of graphs and tables on a screen panel or on paper with the use of an alphanumeric printer or a "Konsul" typewriter. The last four modules are universal and do not depend on the type of optimization object. An advantage of the SAPPOR is the possibility for operative search for the optimum decision and the combination of the designer's experience and intuition with rigorous mathematical methods. In this connection, the design process can be carried out without knowledge of computer programming and the corresponding methods of search optimization.

2/2

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USSR

BATISHCHEV, D. I. and STRONGIN, R. G.

"Numerical Methods of Solution of Matrix Games"

Teoriya Igr [Games Theory -- Collection of Works], Yerevan, 1973,
pp 65-69 (Translated from Referativnyy Zhurnal Kibernetika, No 10,
1973, Abstract No 10V437)

Translation: The solution of a matrix game is reduced to determination
of the maximum convex, piecewise-linear function, dependent on the mixed
strategy of the first player. It is suggested that two search methods
be used for maximization of undifferentiable continuous convex functions.

1/1

USSR   UDC: 681.3.001.2.06

BATISHCHEV, D. I., Scientific Research Institute of Applied Mathematics and Cybernetics Affiliated With Gor'kiy University

"Optimum Design of Electronic Circuits"

Abstract: The paper deals with the process of computer design of optimum electronic circuits. Design is understood to comprise the following basic stages: 1. formalization of the design goal; 2. selecting the optimum circuit schematic (configuration); 3. working out mathematical models and analyzing circuit characteristics; 4. determining the optimum values of circuit elements; 5. elaborating the topology of the circuit. The optimization problems which arise in each of these stages can be formulated as linear programming problems

$$\min_{x \in D} Q(x_1, \dots, x_n),$$

where

$$D = \{x \mid \varphi_j(x_1, \dots, x_n) \leqslant 0, \quad j = 1, \dots, m\}.$$

1/2

USSR

Examples are given illustrating the selection of specific values of the vector x, the target function $Q(x)$ and technical specifications $\phi_j(x)$. Methods of search optimization are considered which are most effective for solution of these problems, together with the possibilities of computer solution in real time.

2/2

USSR   UDC   621.372.057

BATISHCHEV, D. I., BASALIN, P. D.

"Automated Calculation of the Frequency Responses of Passive Two-
-Terminal Pair Networks"

Abstract: The authors consider the problem of digital computer con-
struction of a frequency mathematical model of passive RLC-networks.
A special language and translater are worked out which make it possible
to automate calculations of the frequency responses of complex two-
terminal pair networks. Numerical examples are presented. Two tables,
three illustrations, bibliography of five titles.

1/1

USSR

BATIST, A. I., ARTEMIYEV, YE. M., BERG, B. N., SHAKIRZYANOVA, L. G.

"Worm Press for Making Tubular Products from Powders"

USSR Authors' Certificate No 273634, Cl. 49 h, 11; 491, 16; 31 b^3, 3/02, (B 30 b 9/00, B 22 f 3/00) filed 23 Oct 68, published 14 Sep 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3 G474P)

Translation: The worm press contains a frame, charging hopper, drive mechanism, and endless scew with diminishing depth of thread. In order to press bi-metallic tubular products, the worm press is equipped with a detachable tubular jacket, and the worm is made with a longitudinal axial duct which centers the entering core that shapes the hole in the product to be pressed. One illustration.

1/1

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USSR

UDC: 621.376.32

BATIST, I. I.

"Determination of the Geometric Length of a Short-Circuited Controlling Line in Which a Varicap is Connected"

<u>Tr. Novosib. elektrotekhn. in-ta</u> (Works of the Novosibirsk Electrical Engineering Institute), 1970, vyp. 2, kn. 2, 197-207 (from RZh-Radiotekhnika, No 6, Jun 70, Abstract No 6D270)

Translation: The proposed computational method is developed in application to design of a frequency modulator with a controlling line in which a varicap is connected, printed in this same collection. An investigation is made into the behavior of the oscillatory elements of the system and the self-oscillator as a whole as a function of the magnitude of the controlling capacity for various modifications of selection of the line length. Nine illustrations, bibliography of six titles. N. S.

1/1

1/2   013   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--ELECTRON CAPTURE AT THE 2 PLUS LEVEL IN ARSENIC,72, ARSENIC,74, AND
   RUBIDIUM,84 -U-
AUTHOR-(02)-KOPYTIN, I.V., BATKIN, I.S.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(3), 533-6

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ELECTRON CAPTURE, NUCLEAR ENERGY LEVEL, CALCULATION, RUBIDIUM
   ISOTOPE, ARSENIC ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1054   STEP NO--UR/0367/70/011/003/0533/0536

CIRC ACCESSION NO--AP0110744
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0110744
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   FOR THE TRANSITIONS 2 MINUS YIELDS
2 PLUS, EXACT CALCNS. GAVE EPSILON KAPPA-BETA POSITIVE VALUES OF
0.065-0.116, 1.45-2.48, AND 4.18-4.70 FOR PRIME72 AS, PRIME74 AS, AND
PRIME84 RB, AND EPSILON L-EPSION KAPPA VALUES OF 0.104, 0.103, AND
0.112. THE FIGURES WERE DISCUSSED AND COMPARED WITH EXPTL. DATA AND
VALUES OBTAINED BY APPROXNS.   FACILITY: VORONEZH. GOS. UNIV.,
VORONEZH, USSR.

UNCLASSIFIED

1/2   011   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--ONCE FORBIDDEN BETA DECAY TO COLLECTIVE LEVELS OF SPHERICAL NUCLEI
  AT 72 IS SMALLER THAN OR EQUAL TO A IS SMALLER THAN OR EQUAL TO 86 -U-
AUTHOR-(02)-KOPYTIN, I.V., BATKIN, I.S.

COUNTRY OF INFO--USSR

SOURCE--YAD. FIZ. 1970, 11(2), 342-54

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--FORBIDDEN TRANSITION, BETA DECAY, NUCLEAR ENERGY LEVEL,
  CALCULATION, BETA SPECTRUM, MATRIX ELEMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1048   STEP NO--UR/0367/70/011/002/0342/0354

CIRC ACCESSION NO--AP0110738
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0110738

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ONE FORBIDDEN BETA DECAYS TO THE
GROUND STATE AS WELL AT TO THE 1ST COLLECTIVE 2POSITIVE STATE OF
SPHERICAL NUCLEI ARE CONSIDERED. WITHIN THE FRAMEWORK FO THE THEORY OF
FINITE FERMI SYSTEMS THE REDUCED NUCLEAR MATRIX ELEMENTS ARE CALCD. FOR
NUCLEI IN THE MASS NO. INTERVAL 72 IS SMALLER THAN OR EQUAL TO A IS
SMALLER TO OR EQUAL TO 86. THE SHAPES OF THE SPECTRA AND THE REDUCED
LIFETIME FT ARE CALCD. A DETAILED COMPARISON IS MADE WITH EXPTL.
RESULTS. THE PRESENT METHOD OF CALCN. DESCRIBES SATISFACTORILY THE
PROPERTIES OF THE NUCLEI IN THE REGION INVESTIGATED.   FACILITY:
VORONEZH. GOS. UNIV., VORONEZH, USSR.

UNCLASSIFIED

1/2   021   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--PARTIAL BLOODFLOW AND VENTILATION IN RESTRICTED FORMS OF CHRONIC
    PNEUMONIA -U-
AUTHOR--BATKIN, I.Z.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 6, PP 64-66

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATORY PHYSIOLOGY, BLOOD CIRCULATION, RHEOLOGIC PROPERTY,
    MEDICAL EXAMINATION, PNEUMONIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1718   STEP NO--UR/0504/70/042/006/0064/0066

CIRC ACCESSION NO--AP0129086
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0129086
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR ELABORATED A TECHNIQUE
WHICH MAKES IT POSSIBLE TO INVESTIGATE VENTILATION AND THE BLOODFLOW OF
SEPARATE PORTIONS OF THE LUNGS BY MEANS OF RHEOGRAPHY. A TOTAL OF 251
PATIENTS WITH CHRONIC PNEUMONIA AND 50 HEALTHY INDIVIDUALS WERE
EXAMINED. THE AUTHOR REVEALED HYPOVENTILATION, LESSENING OF THE
BLOODFLOW AND INCREASE OF VASCULAR RESISTANCE IN THE AFFECTED PORTIONS
OF THE LUNGS IN PATIETNS WITH CHRONIC PNEUMONIA OF THE II AND IID
DEGREE. FUNCTIONAL DEFICIENCY OF THE AFFECTED PORTIONS MAY BE ONE OF
THE INDICATIONS FOR SURGICAL TREATMENT OF PATIENTS WITH CHRONIC
PNEUMONIA.   FACILITY: KAFEDRA PROPEDEVTIKI VNUTRENNIKH BOLEZNEY
I KAFEDRA OBSHCHEY KHIRURGII I ANESTEZIOLOGII KHABAROVSKOGO
MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

USSR   UDC: 629.78.051

FEDOSOV, Ye. A., BATKOV, A. M., LEVITIN, V. F., SKRIPKIN, V. A.

"General Problems in Guidance Theory"

Moscow, Upr. dvizhushchimisya ob"yektami. Tr. IV Vses. soveshch. po avtomat.
upr. Tbilisi, 1968--sbornik (Control of Moving Objects. Works of the Fourth
All-Union Conference on Automatic Control. Tbilisi, 1968--collection of
papers), 1972, pp 8-29 (from RZh-Raketostroyeniye, No 10, Oct 72, abstract
No 10.41,157)

Translation: A united approach to design of spacecraft control systems is
proposed. Formulation of the general problem of guidance is discussed. A
linear guidance system is used to illustrate the general features and spe-
cific characteristics of systems of remote control, self-guidance and auton-
omous guidance. The problem of optimizing the guidance system is considered,
and an analysis is made of the specifics of solutions for cases of different
sources of information with account for different types of energy limita-
tions. An investigation is made of the influence of reaction on the charac-
teristics of the guidance system. Methods are outlined for analyzing a
guidance system with regard to absence of complete information on vehicle
characteristics. Four illustrations, bibliography of two titles. Résumé.
1/1

- 36 -

USSR/Mil/RU

BATOV, P. I., Arm Gen; Chmn, Soviet Committee for War Veterans; twice
 Hero SU, spoke to a meeting of Moscow war veterans on 19 Dec devoted
 to the 50th anniversary of formation of the USSR.

Moskovskaya Pravda, 20 Dec 72, p 1, col 7

(1)

AA0051848   *BATOV   V. A.*   UR 0482   //

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

239597 INDUCTIVE LEVEL METER where a float can move
freely along the inductive coils indicating
its position corresponding to the measured level.
The float has been improved, it has two flanges
which make it possible to obtain a parallel reading
from two independent coils.
12.12.66 as 1119046/26-10. A.S. ABRAMOV et al.
(28.7.69) Bul 11/18.3.69. Class 42e. Int.Cl.G 01f.

AUTHORS: Abramov, A. S.; Zotov, S. V.; Maslov, G. S.; Vargin,B.A.;
Shorin, N. I.; Kornyushin, P. M.; Mirskov, B. L.; Chistyakov, N. N.;
Mosyakov, V. A.; Kozlovskiy, G. V.; Chichigin, I. B.; Batov, V. A.;
Golovachev, V. T.; Lyakhterov, M. N.; Kobelev,Yu. M.

1/2   19820276   1

AA0051848

19820277

2/2
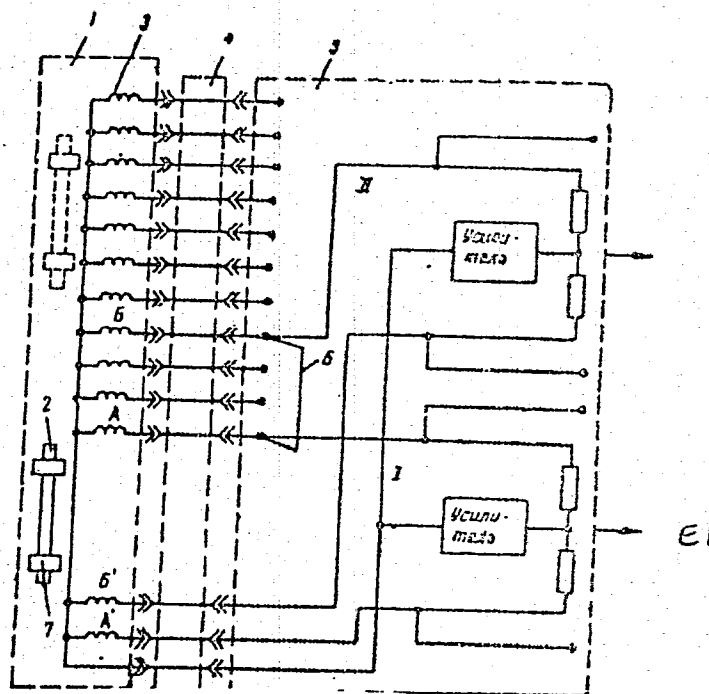
BATOVA, L.K.

WAYS OF IMPROVING THE SYSTEM OF PURIFICATION AND STERILIZATION OF
THE AIR IN THE MANUFACTURE OF ANTIBIOTICS.
N. Kotlns, L.K. Batova, S. Pylinkina

National Institution of Antibiotics, Moscow, USSR.

G 10 - 12

There has been determined a special method to estimate the effi-
ciency of the collection of the particles by filter materials. For this pur-
pose special stands were constructed. Various methods of establishment the
efficiency of the collection of the particles have been tested. During these
experiments were taken the particles with diameters from 0,3 till 1,5 mic-
rons. Among the results of the values of efficiency of the filter materials
the definite correction has been achieved. The simplified theoretical method
was suggested for the estimation of the efficiency of various filter materials
this method allows to determine the level of filter materials as well as the
downfall of the pressure of the air. For the production of antibiotics spe-
cial method was worked out to determine the thermodynamic factors, the state
of the air such as temperature, pressure and so on. The necessity to deter-
mine the parameters of the air in different climate conditions was shown in
this work as well. The experiments were made to determine the properties of
various types of filter materials, such as natural, synthetic and other mate-
rials. As a result of the experiment the most effective materials of a thin
cleaning of the air were selected. Following this theoretical method the pa-
rameters of the filtration of the air were determined by means of the selec-
ted materials. The practical tests have shown a great efficiency in the col-
lection of pollution particles by filter materials. The term of their service
is rather long. On the base of the developed work the stability of exploita-
tion of this plant for sterilization of the air depending on the used ther-
modynamic conditions and filter equipment has been successfully achieved.

So: OOE 324/14086-72, 19 Jun 72;   4th International Fermentation Conference
       Kyoto, Japan - 19-26 March 1972 (Abstracts of Soviet Papers)

BECHMAKHANOVA, N. Ye.,

G5 4

G5-6

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two con-
tion. Cross-
e cofactor
the branched-
enzyme

DISTRIBUTION OF PRODUCERS OF ALKALOIDS AMONG THE FUNGI.
A.M.Bezborodov, I.I.Guseva, O.V.Krurina, N.E.Bechmakhanova.
Institute of Biochemistry and Physiology of Microorganisms,
Academy of Sciences USSR, Puschino.

An ability of different representatives of fungi to synthesize alkaloids under the
submerge and surface culturing was studied. Two kinds of media were used for the growth
of fungi: (a) synthetic medium, containing mannite and succinic acid as the carbon source;
(b) complex one with corn-steep extract, peptone and glucose.
Medium and mycelium were subjected to an analysis for alkaloid content. Mycelium
was homogenized. Then alkalescence and extraction by the chloroform-isobutanol mixture
(4:1) were carried out. After that alkaloids were transfered into an agneous solution
by acidification with sulphuric acid. The procedure was repeated twice. Further an
analysis was carried out.
Qualitative alkaloid content tests were put with 6 readents typical of alkaloids
and close related to them compounds. As the result it was stated that 27 strains of
108 ones examined belonging to Penicillium, Aspergillus, Fusarium, gave all the 6 reactions,
i gave 5 positive reactions and 29 did 3.
Most of extract didn't give colorimetric reaction typical of indole derivatives.
Chemical nature of compounds obtained is under investigation.

So: OOE 324/14086-72, 19 Jun 72; 4th International Fermentation Conference
Kyoto, Japan - 19-26 March 1972 (Abstracts of Soviet Papers)

USSR   UDC 614.73

ALFEROV, M. V., BADYN, V. I., and BATOVA, Z. G.

"The Radiation Significance of Internal Irradiation Caused by Uranium of
Plutonium Fission"

Moscow, Gigiyena i Sanitariya, No 5, 1970, pp 112-113

Abstract: The possibility of transferring research workers, handling uranium or
plutonium isotopes to operations entailing exposure to neutron fields was examined.
The issue is the additional internal irradiation created by fragments formed during
the fission of the uranium or plutonium isotopes.   Calculations show that from the
standpoint of radiation safety, no additional restrictions need be placed on such
personnel if the exposure to neutron radiation is at the maximum permissible
level.   If the neutron flux reaches values above this level, the conditions of
radiation safety will be determined by the injurious effect of the neutron flux
itself, the internal dose of alpha irradiation, and, if the neutron fields are
sufficiently large, by the dose of fission fragments.

1/1

USSR   UDC: 541.124.7

TAL'ROZE, V.L., VASIL'YEV, G.K., and BATOVSKIY, O.M., Institute of Chemical
Physics, Moscow, Academy of Sciences USSR

"Chemical Lasers Whose Operation Is Based on Chain and Branched Chain Reactions"

Moscow, Kinetika i Kataliz, Vol 11, No 2, Mar-Apr 70, pp 277-289

Abstract: Work on chemical lasers by the authors and others is reviewed. In work
carried on by the authors and other members of their group, the theoretical as-
pects of a laser operating on the basis of the reaction $H_2 + F_2$ were subjected to
study and experimental data obtained on the characteristics of a laser of this
type. The reaction $H_2 + F_2$, being a branched chain reaction, could be expected
to convert chemical energy into energy of stimulated emission more effectively
than reactions of other types. The efficiency of conversion of chemical energy
in an $H_2 + F_2$ laser proved to be 0.2-2%. Contribution of chain branching to
generation became significant after the second limit of ignition had been reached
i.e., a point had been passed beyond which energy branching began, but generation
at a lower level of conversion of chemical energy was already observed in the
region of a straight-chain reaction after passage of the first ignition limit.
Violent $H_2 + F_2$ combustion in a laser of this type can be eliminated by regulating
the composition of the gas mixture - specifically, by adding O_2, which acts as an

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USSR

inhibitor. From the standpoint of application in the production of a laser effect, a reaction with continuous branching ought to be of advantage in comparison with a reaction such as $H_2 + F_2$ that branches only rarely. The only reaction with continuous branching which has been studied in detail is that of H_2 with O_2, but the elementary act of branching in this reaction requires a high activation energy.

2/2

1/3   030   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--FLUORESCEINOANGIORETINOGRAPHY IN PRIMARY GLAUCOMA -U-

AUTHOR--BATRACHENKO, I.P.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 3,   PP 22-26

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DIAGNOSTIC METHODS, EYE DISEASE, HYPERTENSION, HEMODYNAMICS,
  ARTERY, ANGIOGRAPHY, FLUORESCENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0101   STEP NO--UR/0357/70/000/003/0022/0026

CIRC ACCESSION NO--AP0129361
                          UNCLASSIFIED

2/3   030   UNCLASSIFIED   PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0129361
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FIRST RESULTS OF INVESTIGATIONS
INTO RETINAL HEMODYNAMICS IN GLAUCOMA SIMPLEX, MADE BY USING FLUORESCENT
ANGIOGRAPHY, ARE REPOTRED. EXAMINATIONS COVERED 31 PATIENTS MOST OF
WHOM WERE IN A FAR ADVANCED STAGE OF THE DISEASE. IN THE MAJORITY OF
CASES THE RETINAL ARTERIES WERE FILLED IN GOOD TIME, BUT IN 6 PATIENTS
THE ACCESS OF THE CONTRAST MEDIUM WAS DELAYED, ON THE AVERAGE BY 19
SECONDS. VENOUS CONGESTION, WHOSE INTENSITY DEPENDED NEITHER ON THE
INCREASED ARTERIAL CIRCULATION TIME, NOR ON THE INTRAOCULAR TENSION WAS
ELICITED IN NEARLY ALL PATIENS (27); THE LENGTHENED ARTERIAL PHASE
HAVING BEEN NOTED IN 9 PERSONS ONLY. THE MAXIMUM DURATION OF THE VENOUS
PHASE WAS DEMONSTRABLE IN A GROUP OF PATIENTS WITH NORMAL ARTERIAL
PRESSURE, INCLUDING HYPERTONICS IN WHOM ARTERIAL PRESSURE AT THE TIME OF
ANGIOGRAPHY LAY WITHIN NORMAL LIMITS. IN HYPERTONICS PRESENTING
ELEVATED ARTERIAL PRESSURE FIGURES DURING EXAMINATION THE VENOUS PHASE
WAS THE SHORTEST. SPECIAL PLACE IN THE ORIGINATION OF GLAUCOMATOUS
ATROPHY AND IN THE EXCAVATION OF THE OPTIC NERVE DISK IS ASSIGNED TO AN
UPSET BLOOD CIRCULTION IN THE ANTERIOR LENGTH OF THE OPTIC NERVE. THE
AUTHORS PROVE THIS BY STUDYING THE INTENSITY OF THE OPTIC NERVE DISK
FLUCRESCENCE. IN 8 PATIENTS WITH A FAR ADVANCED AND WELL DEVELOPED
FORM OF GLAUCOMA THE FLUORESCENCE OF THE DISK WAS FOUND TO BE NORMAL.
HENCE, CHANGES IN THE BLOOD SUPPLY OF THE OPTIC NERVE PROCEEDED NOT
ALWAYS PARALLEL WITH THE SEVERITY OF THE GLAUCOMATOUS PROCESS. IN 15
PATIENTS VISUAL FUNCITON CHANGES WERE FOLLOWED UP IN DYNAMICS.

UNCLASSIFIED

CIRC ACCESSION NO--AP0129361
ABSTRACT/EXTRACT--THE MORBID PROCESS WAS SEEN TO TAKE A MORE FAVOURABLE
   COURSE IN PATIENTS WITH NORMAL ARTERIAL PHASE OF RETINAL CIRCULATION.
     FACILITY: KAFEDRA GLAZNYKH BOLEZNEY II MOSKOVSKOGO MEDITSINSKOGO
INSTITUTA IM. N. I. PRIOGOVA.

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

BATRAK, G. YE., BONDAR', V. K.

"Role of the Autonomic Nervous System in the Pathogenesis of Morphine Intoxication"

Farmakol. i toksikologiya. Resp. mezhved. sb. (Pharmacology and Toxicology. Republic Interdepartmental Collection of Works), 1970, No 5, pp 5-8 (from RZh-Biologicheskaya Khimiya, No 19, 10 Oct 70, Abstract No 19 F1768)

Translation: Treatment of dogs with lethal doses of morphine resulted in two periods of intoxication - a period of motor calm, sleep, and slowing of bioelectrical activity of the cerebral cortex, and then a period of alertness, convulsions, and tachycardia. Disruption of the autonomic balance in the direction of vago- or sympathicotonia caused a lengthening of the first period or an intensification of the manifestations of the second period, respectively.

Resume

1/1

USSR

UDC 577.1:615.7/9

BATRAK, G. YE., BONDAR', V. K.

"Role of the Autonomic Nervous System in the Pathogenesis of Morphine Intoxication"

Translation: Treatment of dogs with lethal doses of morphine resulted in two periods of intoxication - a period of motor calm, sleep, and slowing of bioelectrical activity of the cerebral cortex, and then a period of alertness, convulsions, and tachycardia. Disruption of the autonomic balance in the direction of vago- or sympathicotonia caused a lengthening of the first period or an intensification of the manifestations of the second period, respectively.

Resume

1/1

Pharmacology and Toxicology

BATRAK, G. Ye., and DORONIN, A. G., Department of Pharmacology,
Dnepropetrovsk Medical Institute

"The Effects of Amidopyrine on the Functional State of the Cerebral Cortex"

Abstract: Studies conducted on pentobarbital sodium-anesthetized cats in
which amidopyrine was administered intravenously or applied directly to
different cortical regions indicated that the stimulant activity that this
drug exhibits for the CNS is due to its effects on the cutaneous, auditory,
and visual representations on the cortex. The most susceptible region was
cutaneous in which the evoked potential increased two-to three-fold. To an
even greater extent the amplitude of the negative phase of the evoked poten-
tial was increased. These findings do not exclude possible effects of
amidopyrine at the subcortical level, but indicate that the stimulating
effects of this drug involves the reflex activity of the CNS.

1/1

TITLE--PHARMACOLOGICAL PROPERTIES OF TWO NEW UNSATURATED AMINE ALCOHOL
   DERIVATIVES -U-

AUTHOR-(03)-BATRAK, G.YE., MALINOVSKIY, M.S., KHMEL, M.P.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(2), 202-3

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CYCLIC ALCOHOL, AMINE DERIVATIVE, CARDIOVASCULAR DRUG,
   HYPERTENSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0183   STEP NO--UR/0390/70/033/002/0202/0203
CIRC ACCESSION NO--AP0119179
                         UNCLASSIFIED

272   016   UNCLASSIFIED   PROCESSING DATE--20NOV70
CIRC ACCESSICN NO--AP0119179
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.
 1,DIMETHYLAMINO,5,CYCLUPENTENYLPENT,4,YN,2,OL HCL (A 51) ADMINISTERED
 I.V. TO DOGS HAD A TEMPORARY HYPOTENSIVE ACTIVITY STARTING AT 5 MG PER
 KG AND INDUCED BRADYCARDIA. A 51 DECREASED THE AMPLITUDE OF CONTRACTIONS
 ISOLATED FRCG HEART AND DILATED VESSELS IN ISOLATED RABBIT EAR. THESE
 PROPERTIES WERE LESS SIGNIFICANT WITH
 1,DIMETHYLAMINO,6,ETHYLOCT,6,EN,4,YN,2,OL HCL (A IV). LD SUB50 LEVELS
 S.C. IN MICE WERE 0.6 AND 0.86 G PER KG FOR A 5A AND A IV, RESP.
 FACILITY: DNEPROPETROVSK, MED. INST., DNEPROPETROVSK, USSR.

UNCLASSIFIED

USSR   UDC 8.74

BABENKO, L. P., BATRAK, YE. T., YUSHCHENKO, YE. L.

"Basic Problems of Executing the A-COBOL Language"

V sb. Teoriya yazykov i metody postroyeniya sistem programmir (Language Theory
and Methods of Constructing Programming Systems—collection of works), Kiev-
Alushta, 1972, pp 150-161 (from RZh-Kibernetika, No 12, Dec 72, Abstract No
12V481)

Translation: The algorithms for the A-COBOL-ALMO translator created on the
basis of the COBOL-ALMO translator is described. The memory allocation
algorithms in the COBOL-translator is based on compiling special information
tables about the data containing the information about their size, properties,
location and hierarchy. The dimensions of the elementary data are defined by
their standards; the dimensions of the group data are defined by the dimensions
of their elementary components. In the algorithm for calculating the data
dimensions, the stack memory system is used. When determining the location of
the data, the accepted relative addressing principle is considered for which
each recording is allotted a separate address file. As the beginning of the
reckoning, the beginning of the write is taken, and as the reckoning unit, the
bit . For data of a new type — bit data in the A-COBOL execution — a special
system has been developed with the beginning of reading at the beginning of
1/3

USSR

BABENKO, L. P., et al., Teoriya yazykov i metody postroyeniya sistem programmir.,
Kiev-Alushta, 1972, pp 150-161

writing; the read unit is a bit. The bit (boolean) data are packed densely in
the memory of the ALMO machine. When loading such data, special load files are
formed which contain the allocation constants and the relative distances of
each of the pieces of data from the beginning of write. These files are
formed by the interpreting subprograms of the translator on the basis of the
table of lengths of elements of the bit writes compiled when examining the
data information tables considering the data hierarchy and their recurrence
rate. The stack memory is also used here complicated by the algorithm for con-
sidering the recurrence of the bit data when compiling the element length table.
For translation of the basic operators of A-COBOL combining the operations of
corresponding COBOL operators and the address operations on the indexes, an
algorithm was developed which forms the reference in the operating program to
the corresponding subroutines of the interpreting system. For translation of
the descriptions of the fields, an algorithm was developed which defines their
parameters (the field dimension, the field index dimension, and so on) which
are used when placing (selecting) an object in the field. The description of
the syntax of the A-COBOL media supplementing the translator from COBOL to the
translator from A-COBOL to the output language is presented. The description
is presented in Bacus normal form supplemented by the indexes of the semantic
2/3

USSR

BABENKO, L. P., et al., _Teoriya yazykov i metody postroyeniya sistem programmir._,
Kiev-Alushta, 1972, pp 150-161

modules given in brackets and located directly behind the correspondent syntac-
tic structural elements. A description of the semantics of the A-COBOL media
is presented by describing their translation algorithms. This description is
executed in the A-COBOL language in machine-independent form.

3/3

USSR

UDC: 621.375.8

BATRAKOV, A. S.

Kvantovyye Pribory (Quantum Devices), Leningrad, Energiya, 1972, 179 pp

Translation: Annotation: This book analyzes the general principles of oscillation amplification and generation by means of quantum systems, the physical processes in quantum devices of ultra-high and optical frequency ranges, the basic technical characteristics and special design features of these devices. The emphasis is on optical quantum devices, especially on those which are the most widely used in modern laser technology.

The book is intended for engineers and technicians involved in the development and operation of systems using quantum devices. It can also serve as a textbook for college students of corresponding specialties.

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USSR

BATRAKOV, A. S., Kvantovyye Pribory, Energiya, 1972, 179 pp

2/3

USSR

BATRAKOV, A. S., Kvantovyye Pribory, Energiya, 1972, 179 pp

3/3

USSR

UDC 666.76.001.4

BATRAKOV, N. A., GAPRINDASHVILI, A. I. and TOMS, O. V., Ural Polytechnic Institute imeni S. M. Kirov

"Potential Applications of Exoelectron Emission for Refractory Studies"

Abstract: This study concerns the exoelectron emission from the surface of Dinas brick for glass-making kilns. The experimental results are correlated with the wetting angles of contact with molten glass. Dinas refractories, while having the lowest wettability and a higher resistance to glass, appears to have a low emission capacity. Exoelectron emission is proposed as a method for reflecting the free surface energy of crystalline substances. The study included experimental impregnation of Dinas brick with solutions of orthophosphates, chromium salts, and other phosphates. The characteristics of the impregnated Dinas brick are cited in tabular form. (2 illustrations, 1 table, 5 bibliographic references)

1/1

USSR   UDC 621.762.002.5(088.8)

LEVIT, I. A., BATRAKOV, P. D., VAGANOV, B. M.

"Automatic Multiple Tube Electric Arc Furnace"

Translation: An electric arc furnace for obtaining powders by reduction con-
tains mechanisms for charging and unloading the furnace and mechanisms for
charging and unloading the troughs. For simultaneous charging or unloading of
all the furnace tubes and to insure complete automation of its operation, the
furnace is equipped with a holder with clamps for the troughs the number of
which corresponds to the number of furnace tubes and a conveyor for moving it.

1/1

USSR   UDC 621.762.002.5(088.8)

BATRAKOV, P. D., BULANOV, A. A., BRIK, A. G., and KARTASHOV, A. I.

"Device for Mixing Viscous and Powdered Materials"

USSR Author's Certificate No. 266195, Filed 17/01/66, Published 24/07/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract
No. 2 G471 P)

Translation: The device contains rotating shafts contacting cylindrical
surfaces with cleaning scrubbers, mounted on a common support. In order
to increase the product quality by repeated mixing, both shafts are
connected to a cylindrical rotating drum with blades on the outside of
the drum, articulated at the ends of the drum and connected by levers
with rollers in a shaped slot in an end feeler installed on the support.
The upper portion of the device carries a scraper in order to clean the
blades of material accumulating on them, while the feeler is made in
this area so that the entire working surface of the blade contacts the
edge of the scrubber as it moves.

1/1

1/2   026   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--THE PROBLEM OF SPECTRAL ANALYSIS OF GLASSES WITH THE USE OF SLIDING
DISCHARGES -U-

AUTHOR--BATRAKOV, R.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKLAD. SPEKTROSK (USSR), VOL. 12, NO. 4, P. 735-6 (APRIL
1970)

DATE PUBLISHED----APR70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--GLASS, SPECTRUM ANALYSIS, SPECTROMETER, VACUUM TECHNIQUE,
EXCITED STATE, PHOSPHORUS, SODIUM SILICATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1410   STEP NO--UR/0368/70/012/004/0735/0736

CIRC ACCESSION NO--AP0138420
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0138420
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LOW VOLT SPARK DISCHARGE OVER
THE SURFACE OF THE SPECIMEN ALLOWED TRACE ANALYSIS TO BE CARRIED OUT
WITHOUT PREPARATION OF POWDER AND FURTHER EXCITATION BY SOME
CONVENTIONAL METHODS. THE NA SUB2 0.3SIO SUB2 GLASS COMPRISED SMALL
AMOUNTS OF P. AND THE SPECTROMETER PROVIDED 4 SPECTRA ON ONE FILM.
BACKGROUND NEAR THE ANALYTICAL LINES WAS USED AS THE INTERNAL STANDARD,
THE CALIBRATION CURVES INDICATE A HIGH CONCENTRATION SENSITIVITY. BOTH
VACUUM AND VISIBLE PARTS OF THE SPECTRUM CAN BE ANALYSED, SPARK IN
VACUUM APPLIED IN CASE OF DIFFICULT TO EXCITE ELEMENTS IN THE GLASS.

UNCLASSIFIED

1/2   007   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--GLYCOLIPID FROM STREPTOMYCES -U-

AUTHOR-(03)-BERGELSON, L.D., BATRAKOV, S.G., PILIPENKO, T.V.

COUNTRY OF INFO--USSR

SOURCE--CHEM. PHYS. LIPIDS 1970, 4(2), 181-90

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STREPTOMYCES, LIPID, GLYCERIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0456   STEP NO--NE/0000/70/004/002/0181/0190

CIRC ACCESSION NO--AP0132671
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0132671
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE CELL LIPIDS OF STREPTOMYCES
LA 7017 TWO UNUSUAL GLYCOLIPIDS WERE DETECTED. ONE OF THEM WAS ISOLATED
IN A PURE STATE AND SHOWN TO BE
1,0,(4,0,(ALPHA,D,GLYCOPYRANOSYL),ALPHA,D,(2, OR 3,0,ACYL)
GALACTURONOSYL),2,3,DIGLYCERIDE.   FACILITY: INST. CHEM. NAT.
COMPD., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 669.15'26'24'28'3-194:669'14.018.821

PETROVA, V. S., FROLOV, A. V., BATRAKOV, V. P., FILIMONOVA, L. A., BELOUS,
V. Ya., NIKISHOV, A. S., BONDAREV, V. V., PODOL'SKIY, M. L.

"Stainless Steel"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 12, Apr 72, Author's Certificate No 334273, Division C, filed 2 Sep 68,
published 30 Mar 72, p 104

Translation: This Author's Certificate introduces: 1. A stainless steel
which contains carbon, chromium, nickel, molybdenum, copper and iron. As
a distinguishing feature of the patent, mechanical properties are improved
by taking the components in the following proportions in percent: carbon--
0.03-0.1; chromium--10.05-11.9; nickel--3.3-4.0; molybdenum--2.3-3.0; cop-
per--1.0-2.0; manganese--less than 0.6; silicon--less than 0.8; the re-
mainder iron; and 2. a modification of this steel distinguished by the
fact that the chromium:nickel ratio is 2.8-3.8.

1/1

1/2   029   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--TREATMENT OF THE SURFACE OF TITANIUM ALLOYS -U-

AUTHOR-(04)-ZAIRAKOV, V.P., PIVOVAROVA, L.N., VASKAN, L.A., YEGOROVA, T.M.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 261,091
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--06JAN70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TITANIUM ALLOY, METALLURGIC PATENT, NITRIC ACID, HYDROFLUORIC
  ACID, SURFACE AREA, HYDROGENATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1788   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0109749
                        UNCLASSIFIED

CIRC ACCESSION NO--AA0109749
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SURFACE OF TI ALLOYS WAS
TREATED IN A SOLN. OF HF AND HNO SUB3. TO REMOVE A HYDROGENATED LAYER
FROM THE SURFACE, THE SOLN. CONSISTED OF: HNO SUB3 (SP. GR. 1.4) 62-83,
HF (SP. GR. 1.13) 16-17 WT. PERCENT AND WATER THE REMAINDER, AND THE
PROCESS TOOK PLACE AT ROOM TEMP. FOR 3-10 MIN.

UNCLASSIFIED

USSR

UDC 541.135.5-183.546

BATRAKOV, V. V., BATRAKOVA, YU. A., and IOFA, Z. A., Moscow State University imeni M. V. Lomonosov

"Effect of Mechanical and Thermal Treatments of Iron on the Efficiency of Corrosion Inhibitors"

Abstract: The previously discovered dependence of adsorptive capacities of iron on the preliminary preparation of specimens (deformation, annealing) was investigated with a view to determine the effect of this factor on the efficiency of corrosion inhibitors. Experimental data show that the corrosion rate of iron in a pure acid solution is lower, but this dissolution rate in the presence of inhibitors is higher on specimens annealed at 750°C than on specimens annealed at 600°C. Corrosion tests of plates of Armco and zone melting iron annealed at 800°C. and on specimens deformed by a 5% elongation revealed that the dissolution rate (in 1 N H_2SO_4) of annealed specimens was considerably lower than that of previously deformed specimens. The dissolution rate seems to be related to the growth of surface energy as a result of increased concentration of defects of the crystalline lattice. The corrosion behavior of individual single crystal faces of iron silicate (Si $\simeq$ 3%) was also investigated and the results are analyzed. One illustr., two tables, six biblio. refs.
1/1

- 91 -

USSR

BATRAKOV, YU. G., TRUN'KOV, I. I.

UDC 528.335.2:528.516

"Experience in the Remote Joining of the Boundaries of Land Holdings Through the Use of the RDG Radiorangefinder"

Moscow, Geodeziya i kartografiya, No. 6, 1971, pp 22-28

Abstract: Experience in the remote joining of the boundaries of land holdings using the RDG radiorangefinder by determining the geodesic coordinates of reliably fixed survey reference points located every 3-5 km is described. Formulas are given for determining the error in the mutual position of the survey points. Experience in the remote joining of the boundaries of land holdings in a forested region on the basis of polygonometric traverses laid with the RDG radiorangefinder is described. The work was done in 1969 in the Lotoshinsk Region of Moscow Oblast in collaboration with the "Rosgiprozem" Planning Institute. The geodesic grid in the region was designed on topographical maps of the scale 1:50,000 with a cross section of the relief of the horizontals every 10 m. It was found that the accuracy of determining the survey reference points is quite sufficient for use as initial data in making theodolite traverses along the boundaries of land holdings. The relative error was 1:1500. It is noted that it is desireable to produce a small-scale radiorangefinder that could measure distances of up to 5-8 km with an error of not more than 10 cm over all kinds of terrain conditions.

1/1

USSR   UDC: 531.55:521.1

BATRAKOV, Yu. V., FILENKO, L. L.

"Motion of an Earth Satellite Under the Effect of Perturbations From Tes-
seral Harmonics"

Translation: The authors investigate analytical expressions for first-order
perturbations in elements of the orbit of an artificial Earth satellite
caused by tesseral harmonics in the expansion of the earth's gravitational
potential in spherical functions with numbers $k, l \leqslant 4$. The coefficients of
the trigonometric terms of these expressions are represented as finite poly-
nomials in powers of the sines and cosines of the orbital inclination, and
as segments of series in powers of the eccentricity accurate to e^4. Resumé.

1/1

Metrology, Surveying, Mapping, Graphics

USSR

UDC 001.89:523.1/8+629.78

BATRAKOV, YU. V.

"Works of the Institute of Theoretical Astronomy of the Academy of Sciences USSR on the Theory of the Motion of Artificial Earth Satellites and Cosmic Geodesy"

Byul. In-ta teor. astron. AN SSSR (Bulletin of the Institute of Theoretical Astronomy of the Academy of Sciences USSR), 1971, Vol. 12, No. 9, pp 777-784 (from RZh-62. Issledovaniye kosmicheskogo prostranstva, No. 4, Apr 72, Abstract No. 4.62.47)

Translation: A paper at a session of the Scientific Council of the Institute of Theoretical Astronomy of the Academy of Sciences USSR was devoted to the 50th anniversary of the Institute. Studies on the problem of perturbed motion of artificial earth satellites, methods for determining their orbits and calculating ephemerides and cosmic geodesy were surveyed. 107 ref. Yu. B.

1/1

BATRAKOV, Yu. V, and FILENKO, L. L.

"The Motion of an Artificial Earth Satellite Under the Action of Disturbances From Tesseral Harmonics"

Translation: Tesseral harmonics of the potential of terrestrial gravity introduce a perceptible contribution to the disturbed motion of an artificial Earth satellite. It is therefore naturally of interest to develop methods for taking disturbances from these harmonics into account, as well as to derive formulas for these disturbances. There is the well-known work of B. Kaula (1961), in which was obtained a general formula for expanding the tesseral perturbation function into elements of the orbit, which is formally applicable for any eccentricities smaller than unity. The general formulas of Kaula are, however, rather bulky and their use is not always convenient when it is necessary to evaluate the disturbances from a small number of tesseral harmonics (with small values of k, ℓ). In some works, analytic

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USSR

expressions are presented for the disturbances of sputniks from tesseral harmonics; however, in these works the degree of accuracy in taking eccentricities into account is, as a rule, not very great. In the work of J. Kozai, for example, only the long-period terms are retained; this corresponds to the case of taking into account only terms containing eccentricity in the zeroth degree. G. A. Ustinov (1967) gives formulas for taking tesseral disturbances into account also with an accuracy to the zeroth degree of eccentricity. Formulas of such a type are very convenient for an approximate evaluation of the disturbances. In a number of cases, however, for example in the case of the motion of a sputnik in the resonance region, more exact accounting of the disturbances becomes necessary.

Explicit expressions are obtained for disturbances from tesseral harmonics with numbers k, $l \leq 4$ with higher accuracy with respect to eccentricity, namely all terms are taken into account to e^4 inclusively. The results are presented in the form of tables, and are convenient for calculations
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- 6 -

USSR

of the influence of various terms, as well as for taking disturbances from harmonics with k, $\ell \leq 4$ into account. Harmonics with $k = 1$ are excluded from consideration, since they do not cause dynamic effects. 5 references.

3/3

USSR

UDC 541.135.5-183.546

BATRAKOV, V. V., BATRAKOVA, YU. A., and IOFA, Z. A., Moscow State University imeni M. V. Lomonosov

"Effect of Mechanical and Thermal Treatments of Iron on the Efficiency of Corrosion Inhibitors"

Abstract: The previously discovered dependence of adsorptive capacities of iron on the preliminary preparation of specimens (deformation, annealing) was investigated with a view to determine the effect of this factor on the efficiency of corrosion inhibitors. Experimental data show that the corrosion rate of iron in a pure acid solution is lower, but this dissolution rate in the presence of inhibitors is higher on specimens annealed at 750°C than on specimens annealed at 600°C. Corrosion tests of plates of Armco and zone melting iron annealed at 800°C. and on specimens deformed by a 5% elongation revealed that the dissolution rate (in 1 N H_2SO_4) of annealed specimens was considerably lower than that of previously deformed specimens. The dissolution rate seems to be related to the growth of surface energy as a result of increased concentration of defects of the crystalline lattice. The corrosion behavior of individual single crystal faces of iron silicate (Si $\approx$ 3%) was also investigated and the results are analyzed. One illustr., two tables, six biblio. refs.
1/1

1

UDC 547.26'118

USSR

SHEPELEVA, YE. S., SANIN, P. I., OLEYNIK, D. N., BATIV, YE. I. and
POLYAKOVA, A. A.; Institute of Petrochemical Synthesis imeni A. V. Top-
chiyev, USSR Academy of Sciences, Moscow

"Phosphonic Derivatives of Adamantane"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 3, 1972, pp 608-611

Abstract: The phosphonic derivatives of adamantane which have a carbon-
phosphorus bond have only recently been described in the chemical literature.
As is well known, one method of synthesizing organophosphorus compounds with
such a bond is that of oxidizing chlorophosphonization -- that is, the reaction
of halogen derivatives of trivalent phosphorus (usually phosphorus trichloride)
with various hydrocarbons in the presence of oxygen. The purpose of this
study was to test this method in obtaining phosphonic adamantane derivatives.
To an adamantane solution within excess of phosphorus trichloride was intro-
duced dry oxygen, the temperature of the reaction mixture being held at 45 to
-5°C for 26-30 hrs. This yielded adamantylphosphonic dichloride. The authors
also produced the methyl ester of adamantylphosphonic acid by reacting the acid
dichloride with sodium methylate in a toluene solution, with hydrolysis. Nine
derivatives of a.-p. acid were synthesized (including four isomeric forms), for

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USSR

SHEPELEVA, YE. S., et al., Doklady Akademii Nauk SSSR, Vol 203, No 3, 1972, pp 603-611

which boiling points, compositions and spectra (infrared, mass and proton magnetic resonance) were obtained.

    Tables of physico-chemical constants and suggested reaction schemes are included with the paper. Some of the data obtained differ from those published by H. STETTER and W. DICTER in 1969.

2/2

UDC: 533.6.011.72 ②

USSR

DORONIN, G. S., STUPNIKOV, V. P., ROMAN'KOV, V. V., BELENKIY,
V. Ya., ZASLAVSKIY, B. I., and BATSANOV, S. S.

"Compression of Plexiglass Cylinders by Glancing Detonation Waves"

Abstract: This article pertains to the physical-chemical investi-
gation of materials, subject to dynamic compression, which are
kept in cylindrical containers under glancing detonation waves.
Research of this type is now being intensively pursued. The pur-
pose of this paper is to investigate the irregular reflection of
shock waves in plexiglass cylinders under compression by glancing
detonations, by a method suggested in an earlier article (G. A. Ada-
durov, et al, Fiz. gor. vzryva, vol 3, No 2, p 281, 1967). This
method proposed using, as a model of the cylinder, plexiglass cyl-
inders observed by high-speed photography to investigate the pic-
ture of the air flow through the fine, scintillating gaps between
the plates composing the cylinders. A description is given of the
explosive material used in the experiments and, briefly, of the ex-
perimental equipment. Results of the experiments are given in the
form of curves of the change in velocity of the shock waves and
1/2

⟨2⟩

UDC: 533.6.011.72

USSR

DORONIN, G. S., et al, Zhurnal tekhnicheskoy fiziki, No 5, 1973,
pp 1059-1064

the relative dimensions of the main shock wave as functions of the
cylinder length. A description of the picture of the phenomenon
is given together with an explanation of the results as shown by
the curves.

2/2

IV. INTERACTION OF SHOCK WAVES WITH SOLIDS

15

Results of a study of shock compression of ten rare earth metal (REM) fluorides and yttrium fluoride are presented. It is shown that the greatest physical characteristics change occurs using 30-50 g hexogene charges, with the exception of CeF_3 and PrF_3 for which the most significant changes occur using 100-150 g charges. All the shock-compressed materials displayed optical anisotropy, since the initial materials were finely dispersed and therefore were pseudoisotropic. The new phase is normally inhomogeneous, and the properties change occurs (or accumulates) in different grains with varying intensity; the value of the effect is maximal only in a small number of crystalline particles. Table 1 shows refractivity indices of the new phases:

	a	b	c	d
LaF_3				
CeF_3				
PrF_3				
NdF_3				
$SmF_3 + \alpha\text{-}Al_2O_3$				
EuF_3				
TbF_3				
GdF_3				
DyF_3				
YF_3				

Table 1. a - compound, b - initial material, c - compressed material

UNCLASSIFIED   PROCESSING DATE--18SEP70

TITLE--CHANGE IN THE POLARITY OF CRYSTAL BONDS DURING HEATING -U-

AUTHOR-(02)-KOZHEVINA, L.I., BATSANOV, S.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 42-5

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--THERMAL EFFECT, COVALENT BONDING, CHEMICAL BONDING, ALKALI
METAL HALIDE, MELTING POINT, CRYSTAL LATTICE ENERGY, CHEMICAL VALENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0781   STEP NO--UR/0192/70/011/001/0042/0045

CIRC ACCESSION NO--AP0104227
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0104227
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BOND IONICITIES (I) FOR 17 ALKALI
METAL AND AG HALIDES WERE CALCD. USING THE EQUATION, I EQUALS 1 MINUS Z.
S SUBACT-(CN. S SUBCOV), WHERE Z IS THE METAL VALENCE, S SUBCOV AND S
SUBSCT ARE THE OVERLAP INTEGRALS FOR THE PURELY COVALENT BONDS AND THE
ACTUAL BONDS IN THE CRYSTAL, RESP., AND CN IS THE COORDINATION NO. OF
THE METAL. THE EFFECTIVE CHARXE ON THE METAL DECREASES BY SIMILAR TO
0.03 UNITS ON HEATING TO THE M.P. AND DECREASES BY SIMILAR TO 0.1 UNITS
ON MELTING. THE BOND POLARITY THUS DECREASES WITH INCREASING TEMP.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--MIXED PLATINUM CHALCOGENIDES -U-

AUTHOR-(03)-RUCHKIN, YE.D., VOSTRIKOVA, L.A., BATSANOV, S.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(2), 252-6

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--PLATINUM COMPOUND, CHALCOGENIDE GLASS, TELLURIDE, SELENIDE, SULFUR COMPOUND, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0185   STEP NO--UR/0363/70/006/002/0252/0256

CIRC ACCESSION NO--AP0115889
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0115889
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYNTHESIS CONDITIONS WERE
FOUND AND MIXED PT(IV) CHALCOGENIDES WERE PREPD. FROM THE REACTIONS OF
THE TYPE PTX PLUS Y, PTY PLUS X, AND PT PLUS X PLUS Y (WHERE X, Y EQUALS
S, SE, TE). AT 500-600DEGREES, NO EXCHANGE TAKES PLACE IN THE PTX SUB2
PLUS PTY SUB2 SYSTEMS. THE COMPD. PTSTE WAS PREPD. FOR THE 1ST TIME,
AND THE PARAMETERS FOR THE HEXAGONAL LATTICES OF PTSSE AND PTSETE WERE
DETD. THE EFFECT OF THE SYNTHESIS CONDITIONS ON SUCH PROPERTIES OF THE
CALCOGENIDES AS THE D. AND THE ELEC. COND. WAS STUDIED.
FACILITY: INST. TEPLOFIZ., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR   𝐵   UDC 662.215.2

BATSANOV, S. S., Institute of Thermophysics, Novosibirsk, Siberian
Department of the Academy of Sciences USSR

"Physicochemical Effects of the Action of an Explosion on a Substance"

Abstract: The article gives a survey of the physicochemical trans-
formations which occur in inorganic substances (of a nonmetallic
character) under or as a result of dynamic loading. The thermody-
namic peculiarities of the shock compression of single-crystal and
polycrystalline materials are considered. It is shown that the
passage of shock waves through a crystalline substance increases its
hardness as a result of an increase in the dislocation density and
misorientation of domains. A description is given of chemical trans-
formations in shock waves, viz. the decomposition and formation of
inorganic compounds. The present state-of-the-art is discussed with
respect to phase transitions in the shock compression of inorganic
materials. The physicochemistry of pulse pressures, though still in
its initial stage of development, offers great opportunities for the
study and transformation of matter. The author thanks G. B. BOKIYA
for his assistance.
1/1

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Explosives and Explosions

USSR

UDC 532.593-546.273-548.33

BATSANOV, S.S., MOROZ, E.M., KUZYUTIN, V.P., Institute of Heat Physics of the Siberian Division of the USSR Academy of Sciences, Novosibirsk

"Action of Explosion on Materials Crystallographic Study of Phase Transition in Boron Nitride"

Abstract: A study was made of the actual structure of hexagonal BN preceding phase transition upon shock compression. A comparison was made of the molar volumes of hexagonal BN of differing densities with corresponding values of the true volume of the formula unit. A plot of volume of cell of hexagonal CN as a function of density showed that turbo-stratified BN has a very loosing packing. Its volume is 1.35 times greater than the true molecular volume. However, the small variation in the X-ray volume in the transition from almost amorphous to well crystallized state (only 5 percent) indicates that the main defects are parallel shifts of planes relative to each other. Results of shock compression of turbostratified BN ($d = 1.64$-1.72 grams/cm^3) increased its density 2.04-2.07 grams/cm^3. The authors thank R.S. ERENBURG and V.S. CHERKASSKIY for their assistance in the work.

1/1

UDC: $543.387 + 546.32.227 + 662.215.2$

USSR

LAPSHIN, A. I., BORODAYEVSKIY, V. YE. and BATSANOV, S. S., Institute of Heat Physics, Siberian Department, USSR Academy of Sciences

"A Study of the Stability of Potassium Persulfate under Explosive Action"

Abstract: Infrared and EPR spectroscopy methods were used to study effects of explosive action on $K_2S_2O_8$, as compared to pyrolytic and radiation effects. It was determined that explosive and radiation action result in the formation of analogous paramagnetic centers, but that explosive and pyrolytic actions differ substantially in this respect. Tabular data are given on the following: (1) pH-metric titration of the persulfate following explosion; (2) infrared absorption spectra of various sulfate samples; (3) absorption spectra for both irradiated and irradiated-"exploded" persulfate; and (4) EPR spectra of the persulfate obtained under various conditions.

1/1

1/2   039   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--EXPLOSION STABILITY OF POTASSIUM PERSULFATE -U-

AUTHOR-(03)-LAPSHIN, A.I., BORODAYEVSKIY, V.YE., BATSANOV, S.S.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 154-9

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, ORDNANCE

TOPIC TAGS--X RAY DIFFRACTION ANALYSIS, ELECTRON PARAMAGNETIC ANALYSIS, IR
SPECTRUM, MOLECULAR STRUCTURE, GAMMA IRRADIATION, CHEMICAL STABILITY,
EXPLOSIVE, POTASSIUM COMPOUND, SULFATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1408   STEP NO--UR/0456/70/004/002/0154/0159

CIRC ACCESSION NO--AP0109470
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0109470

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACTION OF EXPLOSION DERIVED
DYNAMIC COMPRESSION ON $K_2 S_2 O_8$ WAS STUDIED. UNDER THE
ACTION OF AN EXPLOSION, THE DECOMPN. OF $K_2 S_2 O_8$ YIELDS $K_2 SO_4$ PLUS SO_3 PLUS 0.50_2, IN CONTRAST TO THE PYROLYTIC
DECOMPN., WHICH IS USUALLY DESCRIBED BY THE EQUATION: $K_2 S_2 O_8$ YIELDS $K_2 S_2 O_7$ PLUS 0.50_2. THE PRODUCT OBTAINED
AFTER DYNAMIC COMPRESSION OF $K_2 S_2 O_8$ HAD UNUSUAL OXIDN.
AND REDN. PROPERTIES. THE VERY COMPLEX STRUCTURE OF THE IR SPECTRA OF
THE PRODUCT IS DESCRIBED AND DISCUSSED IN DETAIL. THE IR SPECTRA AND
X RAY DIFFRACTION PATTERNS INDICATE THE PRESENCE OF $S_2 O_3$
NEGATIVE NEGATIVE, $S_2 O_5$ NEGATIVE NEGATIVE, AND SO_3
NEGATIVE NEGATIVE. FORMATION OF THESE IONS PROBABLY EXPLAINS THE
UNUSUAL REDUCING PROPERTIES OF THE PRODUCT AND THE PRESENCE OF $H_2 O_1$ IN ITS SOLNS. IN CONTRAST TO THE THERMALLY TREATED SAMPLES OF $K_2 S_2 O_8$, THE PRODUCT OBTAINED AFTER DYNAMIC COMPRESSION
GIVES EPR SIGNALS SIMILAR TO THOSE GIVEN BY SAMPLES IRRADIATED BY GAMMA
AND X RAYS.   FACILITY: INST. TEPLOFIZ., NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2   057   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--EFFECT CF AN EXPLOSION ON A SUBSTANCE. CRYSTALLOGRAPHIC ASPECTS OF
  PHASE TRANSITIONS IN BORON NITRIDE -U-
AUTHOR-(03)-BATSANOV, S.S., MOROZ, E.M., KUZYUTIN, V.P.

CCUNTRY CF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(1), 156-8

DATE PUBLISHEC--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CRYSTALLOGRAPHY, BORON NITRIDE, EXPLOSION, GRAPHITE,
  COMPRESSION SHOCK WAVE, PHASE TRANSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1595/0921   STEP NO--UR/0192/70/011/001/0156/0158

CIRC ACCESSICN NO--AP0116431
                        UNCLASSIFIED

TITLE--PHYSICOCHEMICAL EFFECTS OF AN EXPLOSION ON MATTER -U-

AUTHOR--BATSANOV, S.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(4), 697-707

DATE PUBLISHED-------70

SUBJECT AREAS--ORDNANCE, PROPULSION AND FUELS, PHYSICS

TOPIC TAGS--SHOCK WAVE, EXPLOSION, PHYSICAL CHEMISTRY PROPERTY, CRYSTAL
  DISLOCATION, CHEMICAL DECOMPOSITION, HARDNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1725   STEP NO--UR/0363/70/006/004/0697/0707

CIRC ACCESSION NO--AP0138698
                       UNCLASSIFIED

CIRC ACCESSION NO--AP0116431
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE YIELD OF THE DENSE FORM OF BN,
  OB HEXAGONAL BN, INCREASES WITH
  INCREASING DEGREE OF PERFECTION IN THE LATTICE OF HEXAGONAL BN
  (BATSANOV, ET AL., 1968). THE STRUCTURE OF HEXAGONAL BN WAS STUDIED IN
  MORE DETAIL TO EXPLAIN THE MECHANISM OF THE TRANSITION TO THE DENSE
  FORM. THE PACKING OF HEXAGONAL BN IS VERY LOOSE BEFORE ANNEALING; THE
  MAIN DEFECTS ARE PARALLEL SHIFTS OF THE BN PLANES RELATIVE TO EACH
  OTHER. ANNEALING (1000-2000DEGREES) REMOVES THE DEFECTS BOTH WITHIN AND
  BETWEEN THE LAYERS AND EVIDENCED BY THE SHARPENING OF THE 002 LINE AND
  ITS SHIFT TOWARDS GREATER BRAGG ANGLES. ON THE OTHER HAND, EXPLOSIVE
  COMPRESSION SHARPENS THE 002 LINE BUT DOES NOT SHIFT ITS POSITION,
  SHOWING THAT ONLY DEFECTS WITHIN THE LAYERS ARE REMOVED. SUBSEQUENT
  ANNEALING OF THE EXPLOSIVELY COMPRESSED SAMPLES SHIFTS THE 002 LINE TO
  GREATER BRAGG ANGLES WITH SOME INCREASE IN THE LINE WIDTH. THE
  MECHANISM OF THE TRANSITION, BN (COORDINATION NO. 3) YIELDS BN
  (COORDINATION NO. 4), IS ANALOGOUS TO THE GRAPHITE YIELDS DIAMOND
  TRANSITION. EXPLOSIVE COMPRESSION FOLDS THE HEXAGONAL BN LAYERS AND
  FORCES THE ATOMS CLOSER TOGETHER, MAKING IT EASIER TO FORM THE NEW
  BONDS. THE FORMATION OF THE SPHALERITE TYPE MODIFICATION OF BN IS
  DISCUSSED.   FACILITY: INST. TEPLOFIZ., NOVOSIBIRSK, USSR.

                       UNCLASSIFIED

CIRC ACCESSION NO--AP0138698
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMODYNAMICS OF IMPACT
(SHOCK COMPRESSION OF SINGLE CRYSTAL AND POLYCRYST. MATERIALS WERE
EXAMD.   THE PASSING OF SHOCK WAVES THROUGH A CRYSTAL MATERIAL INCREASES
ITS HARDNESS DUE TO INCREASED DISLOCATION D. AND INCREASED
DISORIENTATION OF THE DOMAINS. CHEM. TRANSFORMATION IN SHOCK WAVES ARE
DESCRIBED, SUCH AS THE DECOMPN. AND FORMATION OF INORG. COMPOS. THE
QUESTION OF PHASE TRANSITIONS DURING SHOCK COMPRESSION OF INORG.
MATERIALS WAS ALSO EXAMD.   FACILITY: INST. TEPLOFIZ.,
NOVOSIBIRSK, USSR.

UNCLASSIFIED

AA0040656

UR 0482

/-76

Soviet Inventions Illustrated, Section I Chemical, Derwent,

241558 POLYFERRITE ELEMENTS having transversally
differentiated properties are produced by
charging layers of different ferrites powders
into a mould, and then jointly compressing them and
sintering. Optimum magnetic properties are attained
in each layer by separately calcining each ferrite
powder in an individual manner. In an example as
$MgO-MnO-Fe_2O_3$ ferrite was fired at $900^{\circ}C$ for 6 hrs,
and an $MsO-ZnO-Fe_2O_3$ ferrite at $1000^{\circ}C$ for 5 hrs;
both were cooled in air, ground and treated with
polyvinyl alcohol as a plasticiser. Layers of
both powders were consecutively charged into a mould,
compressed under a pressure of 220-250 kg./cm.^{2}, and
heated at a rate of $300^{\circ}C/hr.$ to $1300^{\circ}C$, kept at
this temperature for 6 hrs, and cooled to $1200^{\circ}C$
over one hour; the cooling was completed at a
pressure reduced to 1-3 mm.
15.5.67 as 1156631/22-1. A.I.DROKIN & V.E.BATSHEVER.
INST. OF PHYSICS. (28.8.69) Bul 14/18.4.69. Class
21g/31b3. Int.Cl. H 01f/B22f.

19750244

AA0040656

AUTHORS: Drokin, A. I,; and Batshever, V. Ye.

Institut Fiziki Sibirskogo Otdeleniya AN SSSR

19750245

USSR   UDC 621.396.6--181.5 (088.8)

BARANOV, A.I., BATSKIAURI, V.D., VOSKOBOYNIKOV, I.I., GAVRILOV, R.A., GALYATKIN,
V.P., GOLUBTSOV, M.S., ZAMIKHOVSKIY, M.R., ZALIPSKIY, A.I., ZLOTIN, V.A.,
KAZATSKER, L.I., LAGUTKIN, G.V., LARIONOV, YU. S., PREOBRAZHENSKIY, S.P., MALKIN,
D.L., RAMENSKIY, I.V., SIMEONOVA, I.S., TIKHOMIROV, B.G., FISHEL', I.SH., SHUBERT,
M.M.

"Device For Deposition Of Multilayer Coverings In A Vacuum"

Translation: A device proposed for deposition of multilayer coverings in a vacuum
is fulfilled in the form of a number of successively mounted independent operating
chambers supplied with evaporators, heaters, and an exhaust system. The device con-
tains a mechanism for transporting substrates, a mechanism for loading and unload-
ing, and a drive mechanism. With the object of increasing the reliability of the
device and improving the quality and reproducibility of the coverings deposited,
outside of the area of the arrangement of operating chambers and parallel to it a
supplementary vacuum chamber is installed, which serves for the deposition in it of
the transporting mechanism, and which communicates with each of the operating
chambers by means of vacuum-overlapping transfer windows located on the side wall
1/2

USSR

BARANOV, A. I., et al., USSR Author's Certificate No 279291, filed 16 June 68, published 30 Nov 70 (from RZh--Radiotekhnika, No 9, Sep 1971, Abstract No 9V272P)

of the supplementary chamber at places for connection to it of the operating chambers. Each of the operating chambers or a group of them is provided with an individual system of high-vacuum pumping.

2/2

USSR   UDC 616.24-003.669.3-091.8

BATSURA, Yu. D., Pathomorphology Laboratory, Institute of Industrial Hygiene
and Occupational Diseases, Academy of Sciences USSR

"Condition of Blood-Air Barrier Ultrastructure After Inhalation of Cupric
Oxide Aerosols"

Moscow, Arkhiv Patologii, No 4, 1971, pp 54-61

Abstract: Electron microscope study of the reaction of rat pulmonary tissue
to inhalation of cupric oxide aerosols showed both destructive and compensa-
tory-adaptive processes. Within 15 min of inhalation, particles of the metal
30 to 3500 Å in size pass through the blood-air barrier (alveolar cells,
basal layer, capillary endothelium) into the bloodstream. After making con-
tact with the copper particles, the cytoplasmatic membrane becomes frayed
and loses its electron-optical density. After the membrane is passed, it
recovers, regaining its normal electron density and distinct contours.
Chronic exposure to cupric oxide aerosols results in marked thickening of
the basal layer, phagocytosis of the copper particles by macrophages of the
alveolar septum and blood, and excretion of the aerosol through the bronchi.
The pulmonary macrophages at this time contain a large number of phage
1/2

USSR

BATSURA, Yu. D., Arkhiv Patologii, No 4, 1971, pp 54-61

lysosomes with osmiophilic inclusions (lipids and ferritin). This shows that
the ultrastructures of the cells are affected by mechanical as well as chemical
factors. The result is gradual development of pulmonary fibrosis, cirrhosis
of the alveolar septa, and emphysema.

2/2

USSR   UDC 681.32

MALAKHOVA, M. M., PLYASHKEVICH, YU. N., GRANEVA, V. M., LOZDERNIK, I. M.,
BATUASHVILI, SH. A., and KHEYFETS, V. I.

"Updating the Minsk-22 Computer"

Tr. N.-i. i proyekt. in-ta mekhaniz. i avtomatiz. upr. proiz-vom v avtomob.
prom-sti (Works of Scientific-Research and Planning Institute for the Mechani-
zation and Automation of Production Control in the Automobile Industry),
1971, vyp. 1, pp 132-141 (from RZh-Avtomatika, Telemekhanika i Vychislitel'-
naya Tekhnika, No 5, May 72, Abstract No 5B75 by V. F.)

Translation: The article describes a number of modernizations in the Minsk-22
computer and gives circuits and descriptions of changes affecting the card and
magnetic tape input units, the start-stop input mechanism, etc. Eight
illustrations. Bibliography with two titles.

USSR

MALAKHOVA, M. M., PLYASHKEVICH, Yu. N., GRANEVA, V., LOZDERNIK, I. M.,
BATUASHVILI, Sh. A., KHEYFETS, V. I.

"Modernization of the Minsk-22 Computer"

Tr. N.-i. i Proekt. In-ta Mekhaniz. i. Avtomatiz. upr Proiz-vom v Avtomob.
Prom-sti. [Works of Scientific Research and Planning Institute for Mechani-
zation and Automation of Production Control in the Motor Vehicle Industry],
No 1, 1971, pp 132-141, (Translated from Referativnyy Zhurnal, Kibernetika,
No 3, 1972, Abstract No 3 V482 by the author's).

Translation: A number of modernizations of the Minsk-22 computer are des-
cribed. Diagrams and descriptions are presented of changes concerning the
punch card input device, magnetic tape reader, input start stop mechanism
card puncher and matching of magnetic drum to computer.

1/1

Hematology

RUDAYEV, Ya A., FEDOROVA, L. I., LIFLYANDSKIY, D. B., BATUKAYEV, A. I., and
SEMENOVA, N. V., Central Institute of Hematology and Blood Transfusion, Ministry of
Public Health USSR, and Institute of Cardiovascular Surgery imeni Bakuleva, Academy
of Medical Sciences USSR, Moscow

"Thawed Erythrocytes as A New Charge for Artificial Circulation Equipment"

Abstract: Whole donor blood has been used in equipment for artificial circulation,
but substantial difficulties are encountered when such blood must be ready for
administration at a given moment. To study the overall perfusion of thawed and
washed erythrocytes in open-heart surgery, 250 ml of thawed erythrocytes was intro-
duced with small doses of whole blood. It was found that satisfactory blood levels
could be maintained. The hemoglobin content in the peripheral blood was 8%, and
the number of thrombocytes was reduced. The erythrocytes, which had been preserved
for long periods of time, appeared to be resistant to all traumas during perfusion.
No operative hemolysis was observed. Further study of this highly effective medium
(erythrocytes diluted in a low-molecular-weight medium) is recommended.

1/1

USSR   UDC 615.21+612.178

PARIN, V. V., Academician (Deceased), FEDOROV, B. M., GRANDBERG, I. I.,
BATULIN, Yu. M., and PODREZOVA, N. A., Institute of Medical-Biological
Problems, Moscow

"Myorelaxation of Animals by the Injection of 3,5-Dimethyl-4-bromopyrazole and
the Effect of Extracardial Nerve Stimulation Under These Conditions"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1,252-1,253

Abstract: Intraperitoneal administration of 3,5-dimethyl-4-bromopyrazole in
a dose of 200-400 mg/kg to rabbits or in a dose of 300-500 mg/kg to dogs pro-
duced a state of profound myorelaxation, from which the animals recovered
within a time that increased with increasing doses of the drug. A dose of
450-500 mg/kg and > 500 mg/kg was lethal for rabbits and dogs, respectively.
Study of the effects of direct stimulation of the vagus or of sympathetic
nerves effecting adrenergic innervation of the heart, which was carried out in
experiments on dogs to which 350-500 mg/kg of the drug had been injected,
showed that the state of myorelaxation did not affect the action produced by
direct stimulation of the extracardial nerves.

1/1

1/2   030   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--COMPARATIVE CHARACTERISTICS OF CHLORPROMAZINE AND CHLORACIZIN
   DISTRIBUTION IN RATS -U-
AUTHOR-(02)-AVAKUMOV, V.M., BATULIN, YU.M.

COUNTRY OF INFO--USSR

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CIRC ACCESSION NO--AP0115192
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHITE MALE RATS WERE GIVEN 20 MG
CHLORPROMAZINE(I) OR CHLORACIZIN (II)-KG. I.P. BOTH I AND II
DISAPPEARED FROM THE BLOOD AFTER 120 MIN. IN 30 MIN II HAD ACCUMULATED
IN THE HEART AND LIVER IN CONCNS. 70-90PERCENT GREATER THAN DID I;
HOWEVER, I WAS 70-90PERCENT CONCD. IN THE BRAIN THAN WAS II. THE
GREATER ANTIARRHYTHMIC EFFECT OF II COMPARED TO I MAY BE DUE TO ITS
GREATER ACCUMULATION IN THE HEART MUSCLE.   FACILITY: LAB.
PSIKHOFARMAKOL, INST. FARMAKOL. KHIM., MOSCOW, USSR.

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